

SOLAR ROCKS

Team Meeting - 10/02
Presentation

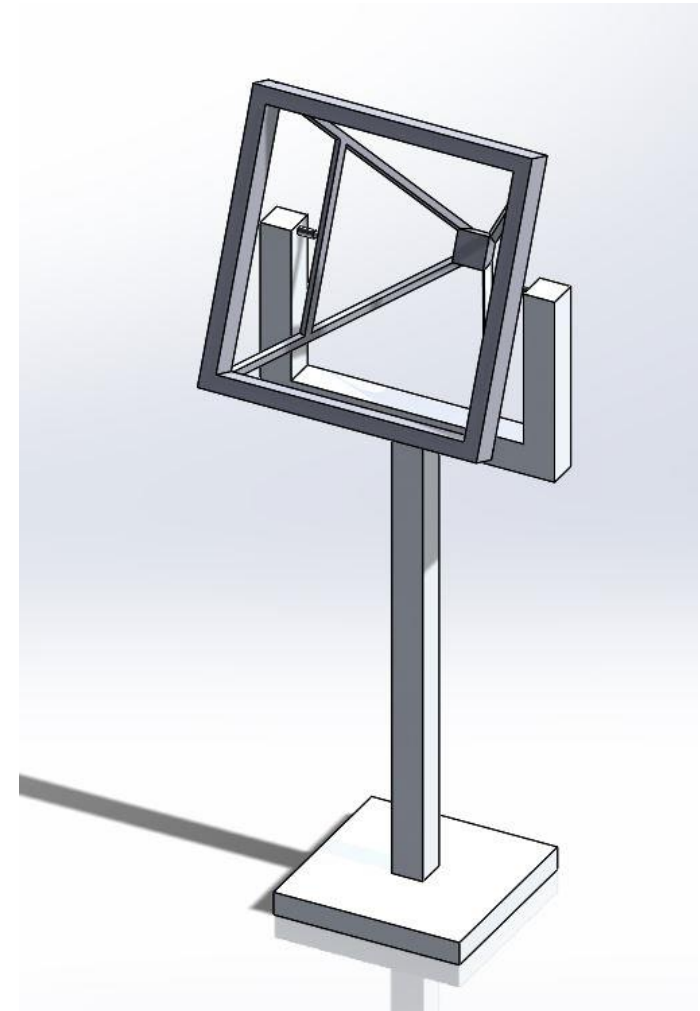
MAIN POINTS

We wish to present the possible methods for solar focusing and energy collection.

We also wish to choose the method we wish to apply in this project.

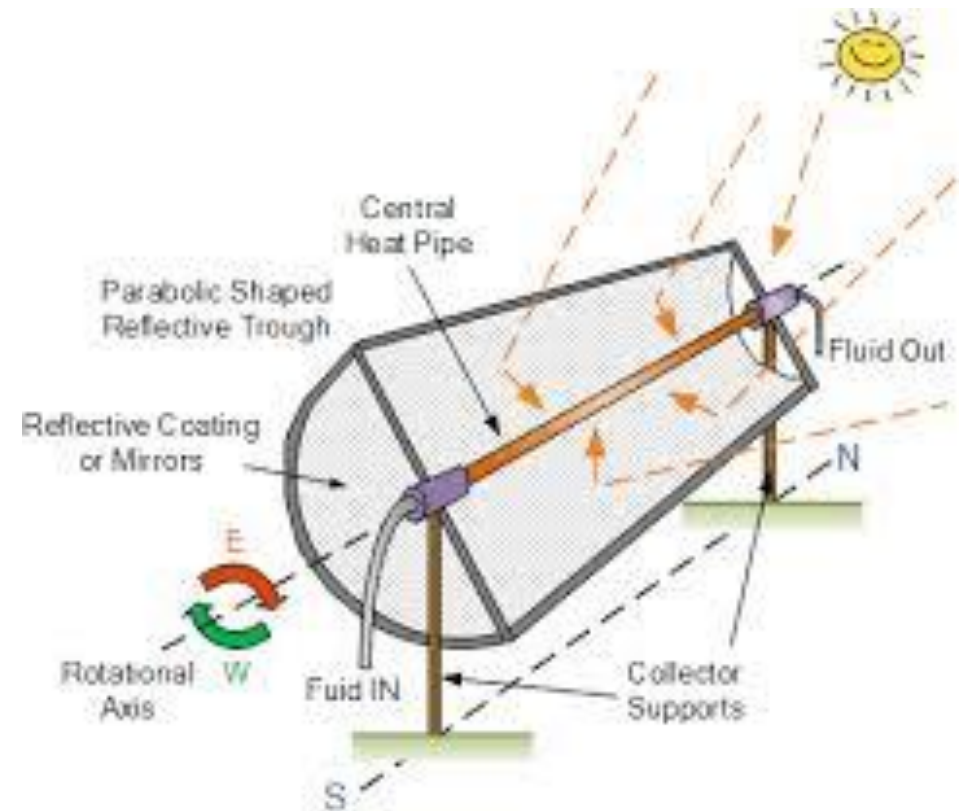
SOLAR SPOT FRESNEL LENS

- Two axis solar tracking is possible.
- A Fresnel lens is used to focus incident light directly onto a thermal tube or plate.
- A heliostat could be modified to make this idea easier to construct.
- Fresnel lenses have a focusing efficiency of around 95%
- This is an original idea and would need to be made.
- Narrow aperture for solar collection.
- ~ \$200-\$300 lenses



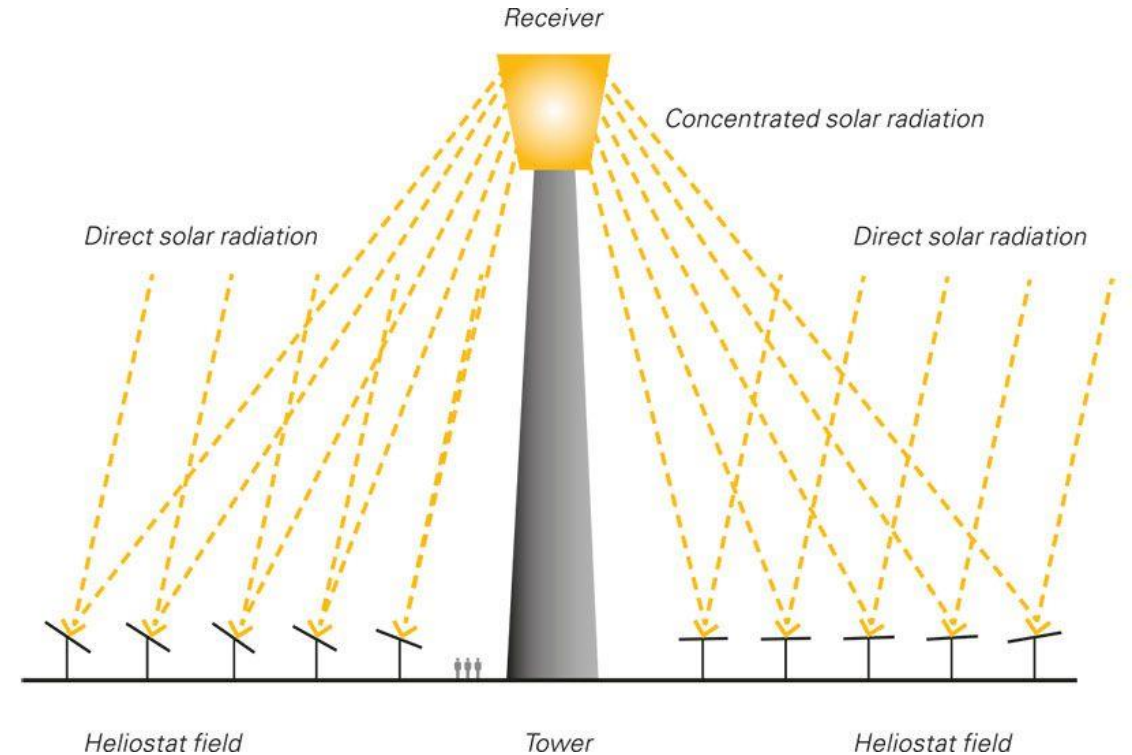
SOLAR TROUGH

- Parabolic mirror bends light to a single focal point.
- Single axis tracking only.
- Have an efficiency of about 75%
- A single receiver tube is used.
- Commercial product we can purchase.
- Might be expensive due to parabolic mirrors.
- Narrower aperture than a CFLR system.
- ~ \$2000 lenses



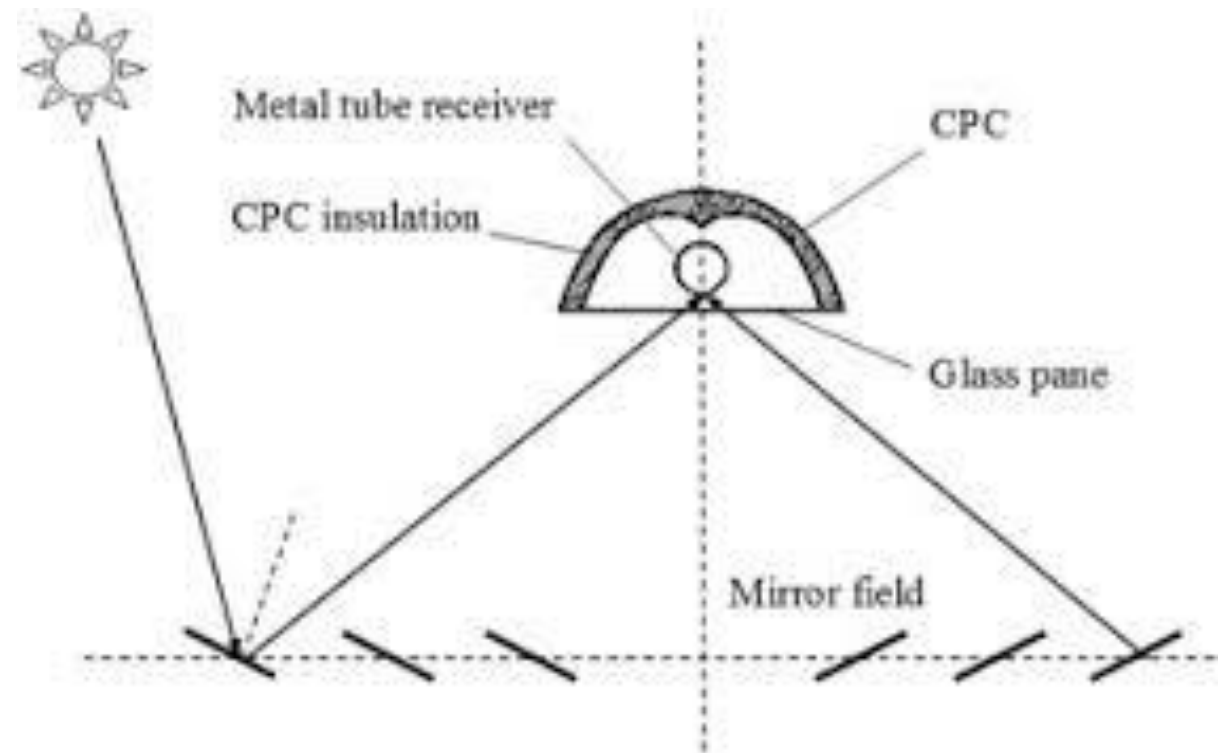
HELIOSTAT

- Flat mirror reflecting sunlight to concentrated location
- Tracks the sun both seasonally and daily
- Available commercially
- Most designs require quite a few heliostats concentrating into tower
- ~ \$2500 per mirror



COMPACT LINEAR FRESNEL REFLECTORS

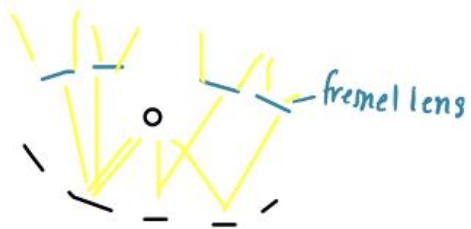
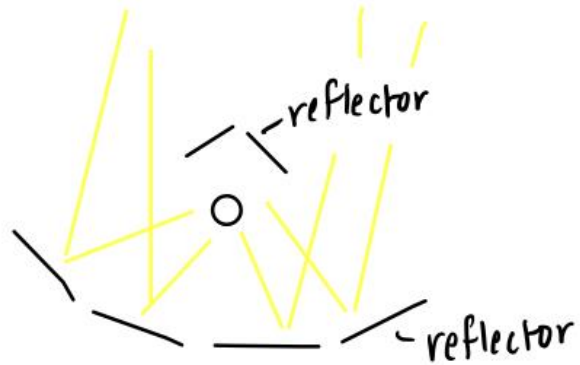
- Array of flat mirrors acts like a Fresnel mirror on the ground.
- Two axis tracking is likely possible.
- Multiple receiver tubes can be used.
- Commercial product we can purchase.
- Cheaper than a parabolic trough (generally).
- Have a product efficiency of roughly 65%
- Wider aperture can reflect more light.
- Currently Patented



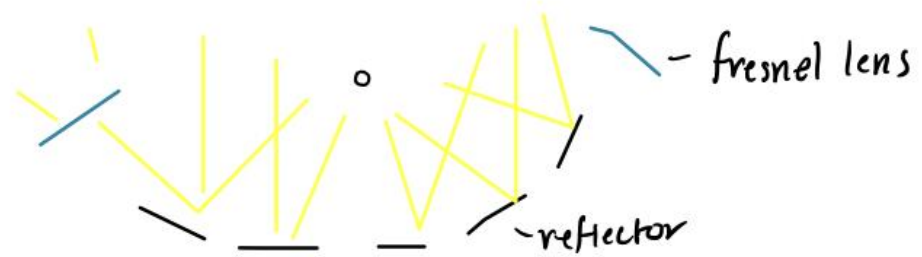
FLAT-MIRROR SOLAR TROUGH

- Same design concept as a solar trough, but with flat mirrors.
- Reflector near the receiver tube catches unfocused light.
- One axis of solar tracking.
- Would have to be built, not purchasable.
- Safe to assume not as efficient as an actual solar trough.

BRAINSTORM IDEAS



Break for shadow from back collector



OTHER OPTIONS

Thermodynamic Panels



Fluid runs through panel
absorbing heat

Bowl Mirror

